

WHAT IS CLAIMED IS:

1 SUB A1> 1 A file system for storing data comprising:  
2 a plurality of storage devices, each storage device operative to store  
3 at least one copy of at least one file;  
4 at least one location server operative to map a file identifier for each  
5 file into the location of each copy of the file represented by the file identifier; and  
6 at least one name server operative to map a file name to the file  
7 identifier referenced by the file name.

1 2. A file system as in claim 1 wherein each file is stored as at  
2 least one file extent, the file identifier comprising a file handle.

1 3. A file system as in claim 1 wherein each file is represented in  
2 storage as an object and each file identifier is an object identifier.

1 SUB A2> 4 A file system as in claim 1 wherein each location database is  
2 further operative to store metadata associated with each file identifier.

1 5. A file system as in claim 1 wherein at least one location  
2 database is on a first computer system and at least one name database is on a second  
3 computer system in communication with the first computer system.

1 6. A file system as in claim 1 wherein the at least one name  
2 database is a plurality of name databases, at least one of the plurality of name  
3 databases operating under a first file access standard and at least one of the plurality  
4 of the name databases operating under a second file access standard different from  
5 the first file access standard.

1 7. A file system as in claim 1 further comprising at least one  
2 client, each client operative to:  
3 request a file identifier for a new file from one of the at least one  
4 location server;

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5 receive the requested file identifier;  
6 register the file identifier and a new file name for the new file with  
7 at least one name server.

1 8. A file system as in claim 7 wherein each client is further  
2 operative to:  
3 send a requested file name to the name server;  
4 receive a file identifier corresponding the requested file name and an  
5 indicated location server from the name server;  
6 request from the indicated location server updated locations for a write  
7 operation to the requested file;  
8 receive updated locations from the location server; and  
9 write data to the received updated locations.

1 9. A file system as in claim 7 wherein each client is further  
2 operative to:  
3 send a requested file name to the name server;  
4 receive a file identifier corresponding the requested file name and an  
5 indicated location server from the name server;  
6 request from the indicated location server the location of data  
7 corresponding to the file identifier;  
8 receive at least one requested location; and  
9 read data from the at least one received requested location.

1 10. A file system as in claim 7 wherein each client is further  
2 operative to:  
3 send an existing file name for an existing file to the name server;  
4 receive a file identifier corresponding the existing file from the name  
5 server;  
6 send the file identifier and a new name for the existing file to at least  
7 one name server, thereby registering the new file name for the existing file.

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1 11. A method for accessing a file referenced by a file name, the  
2 file stored on at least one storage device, the method comprising:  
3 sending the file name to a name server;  
4 receiving a file identifier corresponding to the file name from the  
5 name server;  
6 sending the file identifier to a location server, the location server  
7 separate from the name server;  
8 receiving file location information corresponding to the file identifier  
9 from the location server; and  
10 accessing the file using the location information.

1 12. A method for accessing a file as in claim 11 wherein each file  
2 is stored as at least one file extent, the file identifier comprising a file handle.

1 13. A method for accessing a file as in claim 11 wherein each file  
2 is represented in storage as an object and each file identifier is an object identifier.

1 14. A method for accessing a file as in claim 11 further comprising  
2 accessing file metadata stored in the location server.

1 15. A method for accessing a file as in claim 11 further comprising  
2 sending the file identifier and a new file name to at least one name server, thereby  
3 registering the new name for the file.

1 SUB 137 16. A file system for storing data comprising:  
2 a plurality of storage devices, each storage device operative to store  
3 at least one copy of at least one file;  
4 at least one location database comprising a map between a file  
5 identifier for each file and location information for each copy of the file represented  
6 by the file identifier;  
7 at least one name database comprising a map between a file name and  
8 the file identifier referenced by the file name; and  
9 at least one client operative to

- 10 (a) request a file identifier corresponding to a requested file  
11 name,  
12 (b) receive the file identifier mapped to the requested file name,  
13 (c) request location information corresponding to the received file  
14 identifier,  
15 (d) receive location information mapped to the received file  
16 identifier, and  
17 (e) access data using the location information.

1 17. A file system as in claim 16 wherein each file is stored as at  
2 least one file extent, the file identifier comprising a file handle.

1 18. A file system as in claim 16 wherein each file is represented  
2 in storage as an object and each file identifier is an object identifier.

1 19. A file system as in claim 16 wherein the client is further  
2 operative to access file metadata stored in the location database.

1 20. A file system as in claim 16 wherein the client is further  
2 operative to send the file identifier and a new file name to at least one name  
3 database, thereby registering the new name for the file.

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